DOCUMENT RESUME

ED 246 853 IR 011 182

AUTHOR Gray, Peter J.; Rawers, Lois J.
TITLE Computer Use Planning: A Case Study of a School District's Long-Range Planning Efforts. Paper and Report Series No. 95.
INSTITUTION Northwest Regional Educational Lab., Portland, OR. Research on Evaluation Program.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE May 84
CONTRACT 400-80-0105
NOTE 66p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Case Studies; *Committees; *Computer Oriented Programs; *Computers; Educational Planning; Elementary Secondary Education; *Policy Formation; *Program Development; *School Districts
IDENTIFIERS Computer Uses in Education

ABSTRACT

Based on a case study of a large northwestern suburban school district's initial attempts to establish policy for school use of computers, this report addresses such general questions as how school districts develop policies for instructional and administrative uses of computers, how school policy formation committees function, and how their operations can be made more effective. Focus is on the operations of the policy formation committee and its activities and products. Following a brief introduction, the research design, data collection, and data analysis procedures are explained. The case study is then detailed, with descriptions of the charge to the committee; its composition, products, processes, and dynamics; and its final report, including an executive summary. The case study analysis procedures are also described, including a comparison and contrast of the final report with the committee's charge; examination of the committee's work in regard to recurrent themes, processes, and issues; and a survey of committee members in which they evaluated various aspects of the committee's work and made recommendations for further action. Conclusions based on study findings and concepts identified in the literature as important to the success of educational innovations conclude the report. Fifteen references are listed and a summary of committee events and associated materials are appended. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M. Margaret Rogers

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED246853

No. 95 COMPUTER USE PLANNING: A CASE STUDY OF A SCHOOL DISTRICT'S LONG-RANGE PLANNING EFFORTS

PETER J. GRAY
LOIS J. RAWERS

May 1984

Nick L. Smith, Director
Research on Evaluation Program
Northwest Regional Educational Laboratory
300 S.W. Sixth Avenue, Portland, Oregon 97204

IR011182

Published by the Northwest Regional Educational Laboratory, a private nonprofit corporation. The work upon which this publication is based was performed pursuant to Contract No. 400-80-0105 of the National Institute of Education. It does not, however, necessarily reflect the views of that agency.

The information presented in this publication does not necessarily reflect the opinions of the Northwest Regional Educational Laboratory and no endorsement should be inferred.

PREFACE

The Research on Evaluation Program is a Northwest Regional Educational Laboratory project of research, development, testing, and training designed to create new evaluation methodologies for use in education. This document is one of a series of papers and reports produced by program staff, visiting scholars, adjunct scholars, and project collaborators--all members of a cooperative network of colleagues working on the development of new methodologies.

How do school districts form policies about the instructional and administrative uses of computers? How do school policy-forming committees function, and how can their operations be made more effective? These and related questions are addressed in this case study of one district's initial attempts to establish policy about the use of computers in the schools. This report focuses on the operations of the policy formation committee, its composition, activities, and products. An analysis of this case example is used as a basis for recommendations about how other districts can better develop computer policies.

Nick L. Smith, Editor
Paper and Report Series

ACKNOWLEDGEMENTS

The authors extend their appreciation to the district for welcoming them to the meetings, and for answering many questions about the district, and to committee members themselves for allowing us to observe them at work, and to survey their opinions. Finally, we wish to thank Judy Turnidge and Edith Gross for skillfully transforming our manuscript into this finished product.

CONTENTS

	Page
Executive Summary	i
Introduction	1
Research Design	3
Case Study Questions	4
Data Collection and Analysis	4
District Characteristics	5
Status of Computer Use	6
The Press for a Computer Use Plan	7
Case Study Focus	10
Charge to the Committee	10
The Composition of the Committee	10
Committee Processes and Products	11
Committee Dynamics	11
Final Report	12
Case Study Analyses	16
The Charge and the Final Report	16
Themes, Processes, and Issues	18
Committee Survey	22
Conclusions	26
The Products	26
The Processes	29
Summary	34
References	35
Appendix: Summary of Committee Events and Associated Materials	37

FIGURES

		Page
Figure 1:	Examples of Past and Current District Activity Related to the Instuctional Use of Computers	8
Figure 2:	Tally of Contributions	13
Figure 3:	Executive Summary of the Committee's Report	14
Figure 4:	A Comparison of the Charge and the Final Report	17
Figure 5:	Summary of Observations Regarding Themes, Processes, and Issues	20
Figure 6:	The Elements Related to Planning for District Computer Use	27
Figure 7:	Educational Change Elements	30

TABLE

Table 1:	Committee Survey Summary	24

EXECUTIVE SUMMARY

The purpose of this case study was to explore the way one school district approached the complexities surrounding decisions about computer use. By using a variety of criteria, we were able to identify those factors which facilitate and inhibit educational change regarding computer use. By studying this district's efforts, we hoped to learn about the dynamics of the change process as they relate to computer technology. As a result, we will be better able to assist other school districts in formulating and implementing their plans for computer use.

District Characteristics

The district under study, located in a large suburban area of the Pacific Northwest, serves an overall population of approximately 130,000 working class to upper middle-class citizens. Since the district's major industries are electronics development and production corporations, its population includes many extensively educated professional and technical workers. Residents of the county that includes the district earn the highest median income in the state. Nearly 20,000 students attend the district's 26 elementary (grades 1-6), 6 intermediate (grades 7-9), and 3 high schools. The district is known for its leadership in many areas, including microcomputer usage.

As a result of pressure accumulating from several sources, the district superintendent issued the announcement and charge to the committee on computer use on May 10, 1983. The charge to the committee had two main parts. The first part called on the committee to recommend a "three- to five-year District computer use plan" "compatible with the Board-adopted long-range plan." The plan was due "no later than the end of November 1983." The charge then went on to set the composition of the committee and its support system. Suggestions from various sources increased the size of the team from the 10 named in the superintendent's original recommendation to 13. The committee had representatives of school building and central office administrators, elementary and secondary teachers, and the community. External consultants were hired to provide ongoing technical assistance and to prepare the committee's report.

The committee members were selected in the spring of 1983. The committee's first meeting was held on June 20, 1983, and its final report was due at the end of November 1983. In the interim, the committee met on the average of two times a month except during July when no meetings occurred. Toward the end of this period, it met weekly to consider final drafts of its report. The final product, Computer Uses . . . Policy Proposals and Action Recommendations, Report and Executive Summary, went through several drafts and was submitted to the superintendent on November 30, 1984.

Research Design

This study made use of most of the devices and materials which strengthen case studies. These include: historical documents and working drafts of plans; management records (e.g., meeting minutes and internal documents); organizational charts and the organizational biographies of participants; timeline of events; and in-depth "interviews with participants" in the form of a survey of committee members' perceptions, suggestions, and comments. The facts of the case study were collected through first-hand observation at committee meetings and the review of committee meeting minutes and other documents.

Case Study Analyses

Three different analyses were conducted regarding the information collected as part of this case study. One analysis compared and contrasted the superintendent's charge and the committee's final report. It is evident that the long-range plan called for by the superintendent was not developed. Instead, a series of policy-related recommendations were presented that focused on instructional-related computer use and the logistics of computer use management and coordination. Almost all of the specific recommendations related to the topics specified by the superintendent were part of the functions delegated to a proposed computer coordination and support office and related structures and/or an interim committee. These included divisional responsibilities, development and maintenance of a plan, staffing requirements, and incorporation of new technology.

A second analysis focused on the committee's actual operation based on observations by the authors. There were several recurrent themes that appeared throughout the committee's deliberations. There was a definite difference of opinion among committee members about their role in recommending policy, some for and some against such a role. The views of those who opposed such a role won out. A concern with hierarchical relationships regarding management and coordination of computer use tended to overshadow substantive consideration of administrative uses of computers. The process of structured planning is closely related to the policy setting theme. Attempts at structured planning were made throughout the history of the committee. A larger notion of process concerns the timeline of the committee's work. Given the committee's short timeline, it is not surprising that only policy recommendations and not full plans were developed. Several other important issues related to the centralization versus decentralization of control were raised during the deliberations of the committee. One issue was the management of instructional and administrative computing functions. Other related concerns included a district-wide curriculum, requirements for computer literacy among all staff, and hardware and software standards.

A third analysis was in the form of a survey of committee members' own evaluation of the work and their recommendations for further work. At the committee's request, a survey of committee members was conducted by the authors shortly after the final report had been submitted to the superintendent. Using a five-point scale, respondents indicated the perceived quality of nine aspects of the committee's work (e.g., leadership, goals, timeline). Responses to these items were generally positive. The overall rating of the committee's success (item 10) was an average of 3.7, again positive, but not overwhelmingly so. Individual item analyses seem to suggest an undercurrent of less positive opinions, differing from that represented by the positive average ratings. When asked about "other feedback," respondents' comments ranged from, "It turned out well!" to "This was one of the most frustrating committees I have served on." This seems to epitomize the variety of reactions to the committee's efforts that are reflected in the ratings of quality and overall success and in the responses to the open-ended items.

Conclusions

The work of the committee was analyzed from three perspectives. Conclusions presented are based on these findings and on concepts identified by the authors from the literature on educational change. These concepts are the ones considered important to successful innovation. The findings of this study are grouped under two broad topics. One is the committee report and its parts (i.e., the products of the committee) and the other is the process of committee deliberations which led to developing the report.

Of the four areas relevant to school district computer use, the committee's report focused directly on two areas and tangentially on two others. The two with specific recommendations are management and coordination of computer use and instructional uses. Administrative use it tangentially considered in that the committee report has two very general recommendations on this topic. And, they are more related to district-wide management information concerns than to personal professional uses. Therefore, these recommendations also represent the committee's work regarding the fourth area district-wide, inhouse, and contracted management information services.

The products of the committee in this case study are not the only things that have an impact on future events. A certain expectation regarding change was fostered as much by the actions of the committee, what it did, what it didn't do, and how things were accomplished, as by the "recommendations" in the report. Conclusions regarding the findings of this study can also be drawn relative to the process of educational change and related critical factors.

The first step in a managed change process is the clarification of issues. From the initial charge to the final draft of the committee's report, the elements related to district computer use planning remained unclear. The central administration did not present a clear definition of these elements in its charge to the committee, nor was the committee successful in clarifying these elements on its own.

Of course, it may be the case that the central administration was not clear about the issues surrounding a change like computer use or about the steps in the change process. Consultants can provide a great service by providing the administration with recommendations regarding the processes of change that provide enough time for the necessary clarification to take place.

The time needed for such initial clarification should have been included in the overall schedule. In the case of this committee, the time between the June and August meetings should have been devoted to clarification of the issues surrounding computer use. In addition, the central administration should have provided a framework for action in the form of guidelines for policy statements and related plans. Without the direct endorsement by the central administration, those guidelines provided by the consultants did not have the necessary authority.

The formulation of adoption alternatives is the second step in the change process. Being representative of many groups throughout the district, the members of the committee were those best suited to engage in the policy analyses needed to develop computer use adoption alternatives. At least four subgroups could have been designated, each one charged with conducting policy analysis on one of the elements related to planning for district computer use (i.e., instructional uses, administrative uses, district-wide management information system, and management and coordination of computer use). Together with the initial clarification of the issues, the generation of adoption alternatives is all that could reasonably be expected over the five- to six-month life of the committee.

Planning for implementation is the third step. This committee never got to the planning step. If they had, the alternative(s) adopted as a result of the previous step would not have been refined enough for implementation. If implementation is to be successful, it must be structured to help practitioners find their own subjective meaning of the change. Therefore, the involvement of those to be affected by a change such as computer use is critical to planning implementation. Developing such plans is another year's work. And once they are completed, it will take three to five years to implement them. Unless central office administrators are aware of this and are able to separate interim activities from long-range plans, frustration and cynicism are likely to develop.

Summary

The members of the committee in this case study worked long and hard on the issue of computer use. However, what can be learned from this case study is that the lack of clarity in regard to the content and process of change can lead to incomplete results and the misdirection of energy. After six months a new committee has been formed to essentially repeat the work of the old committee.

The literature on educational change suggests that the active knowledge and involvement of central office administrators is critical in the clarification of a problem and in the other steps of the change process. By using a problem-solving approach to adoption and by planning ahead for implementation, results can be achieved that have the greatest potential for meeting the needs of all concerned.

Introduction

The purpose of this case study was to explore the way one school district approached the complexities surrounding decisions about computer use. School districts all over the country are rapidly adding microcomputers to their stable of instructional and administrative technology. With the advent of low cost/high power microcomputer systems in the last several years, over half of the schools in the United States have purchased microcomputers for classroom use (Johns Hopkins, 1983, Market Data Retrieval, 1982). The potential for using computer technology for diverse purposes besides instruction means that not only teachers, but also administrators and other support staff have begun to explore ways to take advantage of microcomputers in accomplishing their respective tasks.

Typically, individual microcomputers fall within discretionary budget limitations for administrators in school buildings and other settings. Therefore, they are often purchased in a piecemeal fashion depending on the preferences of a particular user and not based on a system-wide perspective as is the case with mini-computers or mainframe computer services. Also, due to their relatively low cost, parents' groups are able to purchase one or more microcomputers through fund raising activities. In fact, parents and the community at large often exert considerable pressure on school districts to utilize microcomputers for instructional and other uses. Unfortunately, this pressure can often result in fragmented rather than coordinated purchases.

As a result, school districts are faced with two conflicting needs. One is the need to rapidly "computerize" in response to pressure from all quarters, that is, administrators, teachers, students, and especially parents/community. The other need is to maintain control over growth in all areas of computer use by coordinating computer services and facilitating compatibility among systems were necessary.

There are some very complex choices which have to be made in order for a decision about computer usage to meet the multiple needs of a school district. As Oettinger noted in his classic essay, Run, Computer, Run: The Mythology of Educational Innovation (1969):

> Before we allow ourselves to be dazzled by new technology, let us note that the single most common technological tool of education, the book, which is also the most ancient, has been and still is misused (p. 44).

Clearly, the need is great for school districts to be able to manage such an extensive change as the introduction of computer technology.

We know, however, from the literature on educational change, that school districts often do not manage change well (Hord, Huling, & Stiegelbauer, 1983; Hall, Hord, & Griffin, 1980; Berman, 1980; Bass, 1978; Emrick, & Peterson, 1978; Berman. & McLaughlin, 1977; Berman, et al., 1975). This is particularly true in regard to the introduction of new technology.

> The biggest obstacle to the rapid and effective introduction of technology into the schools, however, is the structure of the American school system itself, which, in Oettinger's words, "seems ideally designed to resist change." It succeeds in combining the rigidity of a military service and the fragmentation of small business, without either the centralized authority that can make the military move or the initiative and flexibility of response of the innovative entrepreneur.
>
> (Foreward by E. G. Mesthene, in Oettinger 1969, p. ix-x)

Oftentimes, the resistance to change is manifested in frustration and cynicism. Frustration among adoptors (e.g., administrators), due to the apparent reluctance of practitioners (e.g., staff) to implement the adoptors' solution to the problem as they see it. And, cynicism among practitioners because of the apparent unconcern of adoptors for the realities of implementing a given innovation (Lighthall, 1973).

Change, and in particular district-wide change, does not come easy. While "[i]ndividual teachers and single schools can bring about change without the support of central administrators, . . .

district-wide change will not happen" (Fullan, 1983, p. 65). As Sheingold, Kane, and Endreweit (1983) note at the end of their study of microcomputer use in schools, "[t]he results suggest that the effects of microcomputers on education will depend, to a large extent, on the social and educational contexts within which they are embedded"(p. 431).

By using a variety of criteria to examine how one school district attempted to define its organizational problem and develop long-range solutions regarding computer use, we can see in concrete terms those factors which facilitate and inhibit the change embodied in computer use. By studying this district's efforts, we hoped to learn about the dynamics of the change process as they relate to computer technology. As a result, we will be better able to assist other school districts to formulate and implement their plans for computer use.

Research Design

"As for any historical effort, good records and documentation make case studies particularly valuable" (Hoaglin, Light, McPeek, Mosteller, Soto, 1982, p. 129). Although this was not a comparative case study due to the lack of funds for such a study, and the lack of local school districts engaged in comparable efforts, it did have most of the other devices and materials noted by these authors which strengthen case studies. These include:

historical documents and working drafts of plans

management records (e.g., meeting minutes and internal documents)

organizational charts and the organizational biographies of participants

time-line of events

in-depth "interviews with participants" in the form of a survey of perceptions, suggestions, and comments.

Of course, these devices were used in addition to the first-hand observation of events by the authors. Such techniques lend a vividness and reality to the case study and help to convey the complexity of dealing with computer use on a district-wide basis. It is hoped that they also make the case study useful and valuable to other districts attempting similar efforts.

Case Study Questions

The following questions formed the basis of this case study:

1. What was this district like?
2. What is the purpose and composition of the committee charged with developing a long-range district computer use plan?
3. What were the processes and products associated with the committee's efforts?
4. How might the committee's processes and products be analyzed?
    a. What was the relationship between the charge to the committee and its final report?
    b. How did the committee operate?
    c. How did committee members view the effort?
5. In light of the literature on educational change, what are the conclusions that can be reached regarding these findings which are relevant for this and other districts?

These questions form the framework for this paper in terms of the focus of each major section.

Data Collection and Analysis

The facts of the case study were collected through first hand observation at committee meetings and the review of committee meeting minutes and other documents. Analyses of the events and products associated with the committee were conducted to identify successful and unsuccessful elements. Three different analyses were conducted regarding the information collected as part of this case study. One analysis compared and contrasted the superintendent's charge and the committee's final report. A

second analysis focused on the committee's actual operation, based on observations by the authors. Here analyses were conducted of (1) the way the committee reacted to recurrent themes in its work, (2) the actual processes of the committee, and (3) how the committee dealt with various larger issues which faced it. A third analysis was in the form of a survey of committee members' own evaluation of the committee's work and their recommendations for further efforts.

The analysis of both events and products was intended to ultimately identify the implications of this study for:

a. assisting this and other school districts in planning for the use of computers;

b. further research into the process of planning for computer use.

District Characteristics

The district under study, located in a large suburban area of the Pacific Northwest serves an overall population of approximately 130,000 working class to upper middle-class citizens. Since the district's major industries are electronics development and production corporations, its population includes many extensively educated professional and technical workers. Residents of the county, which includes the district, earn the highest median income in the state. Nearly 20,000 students attend the district's 26 elementary (grades 1-6), 6 intermediate (grades 7-9), and 3 high schools. The district is known for its leadership in many areas including microcomputer usage.

The district's patrons are quite supportive of education in general and view a high quality education as an essential ingredient in their children's lives. Parents participate extensively in school volunteer programs and parent organizations, as well as vocally at board meetings and budget hearings. District officials make a carefully planned and

executed effort to get community input and to keep the community informed about a variety of current issues, including computer use.

Status of Computer Use

The are two main aspects of computer use in the district. One is administrative use which is dominated by centralized data processing and information management. The other is the building level instructional use.

Administrative uses of computers. The district owns and operates its own Burroughs computer, numerous microcomputers, computer terminals, and printers; purchases substantial services from the statewide information system; purchases other miscellaneous computer services; and employs a data processing staff. There is a staff of 12 full-time and 3 half-time data processing employees. Terminals, printers, and microcomputers are also located in individual schools. In the past, an Advisory Committee for Computer Use, comprised of principals and central office administrators, made recommendations concerning new systems, existing services, and operational priorities regarding district data processing.

Besides doing district instructional management computing, the central data processing computer is linked directly to the statewide information system via telephone, allowing for "remote job entry" of batched input to the system and output and printing of system reports. The personnel office, business office, special education department, high schools, and intermediate schools can also input data to the statewide information system via on-site terminals.

In 1979, the district adopted a single microcomputer brand, Apple, to allow for consistency of purchase, use, and maintenance. At present, 15 Apple microcomputers are being used for administrative purposes by various departments. An estimated 150 Apples have been purchased and are being used in the individual schools for administrative and instructional purposes. However, they were purchased with individual building

funds or by parent groups and were not subject to review or approval by the Advisory Committee for Computer Use. Therefore, there is no precise central inventory of those microcomputers situated in individual schools.

Instructional uses of computers. The school board has adopted no official policy indicating that computers should be used in the district's educational programs or specifying what role(s) they should play in instruction. Despite this lack of formal policy, much computing hardware and software are in place in the schools and many teachers use computers as instructional tools and or teach about computers.

In February 1983, the district's Computer Curriculum Committee projected instructional computer needs and recommended the purchase of 72 microcomputers for elementary schools, 144 for intermediate schools, and one 30-terminal system for each of the district's 3 high schools. Requests for proposals went out and bids were awarded to Commodore to supply Commodore 64's to elementary and intermediate schools, and to Alpha Micro for the 3 high school systems. These were purchased in the fall of 1983.

Some examples of past and current district activity in relation to the instructional uses of computers appear in Figure 1. These activities clearly put this district in the forefront of instructional computer use.

The Press for a Computer Use Plan

According to one central office administrator, long-range planning for computer use in the school district is an issue that has been "floating toward the top for a couple of years." The need for a coordinated planning effort had been apparent to this administrator for two or three years, especially as funding became more limited and as the district was becoming more and more involved in computer uses and acquisitions without any coordination. This same person initiated a cursory computer use needs assessment during the summer of 1982. The superintendent learned of this assessment and, through it, the manager was able to illustrate (1) that computer services were being duplicated

Figure 1
Examples of Past and Current District Activity
Related to the Instructional
Uses of Computers

1. As early as the 1979-80 school year, a committee of teachers and administrators was formed to provide some direction for instructional computer use.

2. Since inservice classes were first offered in 1979-80, at least 860 teachers have registered to receive credit. In fall 1983, 20 to 25 teachers enrolled in each of the 11 courses taught in the District, ranging from introductory computer literacy to advanced programming.

3. A curriculum materials preview library currently contains over 200 software packages that teachers and administrators may examine.

4. Four years ago (1980-81), the district established its own computer equipment maintenance and repair program.

5. A tentative elementary school Computer Education Scope and Sequence has been developed and is currently being revised by the district's Curriculum Steering Committee.

6. As of 1983-84, a Teacher on Special Assignment for Computers in Elementary Schools has been appointed at .6 full-time equivalent (FTE).

7. As of 1983-84, all sixth grade teachers are to teach a nine-week computer literacy unit to their students, some without access to a computer.

8. A Teacher on Special Assignment for Computers in Secondary Schools (.4 FTE) was also new for the district in 1983-1984.

9. Each of the three high schools has a 30-terminal, time-share systems and compatible software packages, including: data base management, word processing, electronic spreadsheet, BASIC, Pascal, and a full accounting system.

10. In addition, each high school has approximately 12 Apples with disk drives, monitors, and printers.

11. Secondary school computer science course offerings are consistent among all the schools at both secondary levels. At intermediate schools, "Introduction to Computers" and "Programming I" are offered as electives. High schools offer "Programming I" and "Programming II," as well as "Advanced Placement Computer Science" (a first for this school district and a first for any school district in the state.)

12. Each of the 6 intermediate schools has approximately 12 Apples, plus 12 recently purchased Commodore 64 systems.

13. Computers enhance the management of special education instruction. Staff members maintain a data base, including test data and Individual Educational Program goals, as well as instructional materials cross-referenced to personal development goals.

within the district and (2) that a decentralized data base was "eroding the central data processing system."

Members of the district's budget committee have asked repeatedly how much is being spent on computers and related acquisitions and services throughout the district. Central office administrators have not been able to respond beyond reporting direct central data processing costs, which amounted to $722,000 for the 1983-84 year. It is estimated that actual, overall computer-related costs are three times that figure.

Further pressure to develop a comprehensive, coherent plan has come from diverse parent protests to teachers and administrators ranging from "You're spending too much on computers" to "The district must devote more attention to and ensure that all students get time on computers." Building administrators and teachers have felt the need for some official direction in order to respond to parents and to decide how best to allocate building funds for computers and related purchases. Principals especially have wanted to know whether they are going to be able to continue to decide independently upon these acquisitions or whether the central office alone will dictate and authorize purchases. Teachers await official policy regarding instructional uses of computers. In addition, an independent consultant contracted to analyze the overall computing needs suggested that the district begin a district-wide, coordinated study of potential administrative and instructional applications and develop a long-range plan.

Imminent cable installation in the district, the possibility of needed expansion of its own central computer, concerns of parents, teachers, and administrators over proliferation of computers without clear, official direction, dissatisfaction with some external services, and questions about decision making protocol regarding computer services and acquisitions all seem to have reached a peak in the spring of 1983.

Case Study Focus

This case study focuses on the major events and products associated with a committee charged by the superintendent to develop a long range district computer use plan. As a result of pressure accumulating from several sources, the district superintendent issued the announcement and charge to the committee on May 10, 1983.

Charge to the Committee

The charge to the committee had two main parts. The first part calls on the committee to recommend a "three- to five-year District computer use plan" "compatible with the Board-adopted long-range plan." The plan was due "no later than the end of November 1983."

The general charge also states that "[r]ecommendations will be developed for organizational consideration as well as computer use needs." This implies that suggestions for changes in the district's organizational structure would be acceptable. A list of specific topics to be considered is also included (e.g., divisional responsibilities, staffing, data transmission). The committee is instructed to treat administrative and instructional uses of computers separately, "but provisions for both will be made within the proposed plan."

The Composition of the Committee

The charge then goes on to set the composition of the committee and its support system (e.g., administration support, liaison with superintendent and cabinet, technical assistance, outside consultant). Two teachers on special assignment for computers were added to the committee's membership. A further recommendation was the appointment of a lay representative, a budget committee member who had been especially vocal in the push for a coordinated plan. In addition, at the recommendation of external consultants, district staff without data processing backgrounds were appointed to the committee. An elementary

principal was chosen to serve as committee chairperson. Suggestions from these various sources increased the size of the team from the 10 named in the superintendent's original recommendation to 13, plus the Manager of Information and Auxiliary Services, the Data Processing Supervisor, and consultants contracted to provide assistance to the committee.

Committee Processes and Products

The committee members were selected in the spring of 1983. The committee's first meeting was held on June 20, 1983 and its final report was due on at the end of November 1983. In the interim the committee met on the average of two times a month except during July when no meetings occurred.

The original schedule listed this initial meeting and then seven meetings from late August to mid-November. The first five meetings were held according to the original schedule (with the insertion of a brief workshop provided by the consultants on September 22.) After that, meetings were held on September 29, October 6, and 19, in addition to the scheduled one on October 11. The October 25 meeting was postponed till October 28, then cancelled altogether at the last minute. The full team meeting on November 15 was not its final one as had been scheduled. The group assembled again on November 16, 23, and 28 to review drafts of the committee's report. The consultants and the committee met the superintendent's November 30, 1983, deadline for a final draft of the committee's report. A meeting-by-meeting summary of the observations of the authors appears in the Appendix to this report.

Committee Dynamics. Contributions of participants at six team meetings were tallied in terms of participants' contributions to team discussions which occurred in September, October, and November. No attempt was made in this tallying to report length of individual contributions. No claim is made that every single contribution was recorded, but resulting totals do give fair indication of the amount of participation by individual team members. Committee members, the number of meetings they

attended (out of the six at which contributions were tallied), and the number of times they contributed are shown in Figure 2.

Excluding the chairperson, the school district staff who made the most contributions were central office administrators. They were also part of the administrative sub-group of the committee. The lay person worked closely with this group in sub-committee discussions. Altogether, this faction of the committee (43%) accounted for 70 percent of the contributions. The other sub-group of the committee included the instructional representatives.

Final Report. The final product, Computer Uses . . . Policy Proposals and Action Recommendations, Report and Executive Summary went through several drafts and was submitted to the Superintendent on November 30, 1984.

The report consisted of an executive summary and full report. The executive summary had a brief introduction and a list of the 11 major recommendations of the committee. This executive summary appears in Figure 3.

The full report was called an "interim report" since it contained only policy related recommendations and not budgets or detailed plans for their implementation. It had six sections and two appendices as follows:

1. Establishment of the committee
2. Background
3. Problem statement
4. Philosophy
5. Recommendations
6. 1983-84 activities

Appendix A: Administrative and instructional application areas

Appendix B: Process for initiation of hardware and software proposals

The committee manager reported that the superintendent appreciated the work of the committee. The final report, especially the executive summary, was seen as being quite helpful. In light of the relatively short timeline, the superintendent felt that the committee and the consultants had done a very satisfactory job. The committee's recommendations are being considered by the superintendent and plans are being made for the subsequent work of an interim committee.

Figure 2
Tally of Contributions

Member	Number of Meetings	Number of Contributions
Chairperson	6	73
Lay Representative	4	51
Accounting Manager	5	45
Coordinator of Program Evaluation	6	43
Director of Certificated Personnel	6	38
Administrator on Special Assignment	4	33
Data Processing Supervisor	6	25
Teacher on Special Assignment, Secondary Schools	6	25
Intermediate School Principal	5	19
Teacher on Special Assignment, Elementary Schools	5	17
Manager, Information and Auxiliary Services	5	11
Intermediate School Principal	6	8
High School Vice Principal	5	6
Elementary School Principal	5	7
Elementary School Principal	4	4
	$\bar{x}$ = 5	Total = 332

Figure 3
Executive Summary of the Committee's Report

INTRODUCTION

Based upon the charge made to the committee, a study was conducted and a report was submitted to the superintendent containing the procedures used by the committee, the statement of the problem, statements of philosophy upon which the recommendations were based, and a set of 11 recommendations. Because the length of the entire report would make it cumbersome to use as a working document, this executive summary containing only the recommendations, was prepared.

RECOMMENDATIONS

The following recommendations have policy implications. Carrying them out may require the development of new policy or the modification of existing policy.

A. Instruction

1.0 The Schools will have a K-12 computer studies curriculum to support the educational philosophy of the District. The curriculum will include topics and courses in elementary, middle grades, and high schools.

2.0 All teachers will be competent in the use of the computer in an instructional setting, including selecting objectives, identifying software, and managing the use of hardware and software.

3.0 Every school will have adequate computer hardware and software to support the above curriculum.

4.0 The District will establish standards for instructional hardware. For courses where students are expected to learn how to utilize a particular type of software (i.e., word processing, spreadsheet, etc.) the District should standardize on the piece of software being used in schools where these courses are offered.

B. Administration

5.0 The School District shall establish and maintain a coordinated computer support system to provide management information at the district and school levels and meet the application needs of administrative units at all levels.

6.0 All administrators and identified teachers and classified staff will be competent in the administrative uses of the computer for their assigned responsibilities.

C. Management and Coordination

7.0 The District shall establish, as soon as possible, a staff office entitled, "Computer Coordination and Support Office," reporting to the superintendent. It should have an annual basic budget of $85,000 - $100,000 for manager, secretary, and supplies. It shall be staffed with personnel trained in the areas of instructional and administrative uses of computers. The office shall be responsible for developing, monitoring, and evaluating the computer use plan, and coordinating and facilitating the use of computers in the District.

8.0 The District shall develop and adopt a computer use plan which will (1) describe the steps to be taken in implementing recommendations 1 through 6 above, (2) specify staff responsibilities, timelines, and budget, and (3) include provisions for monitoring the implementation of the plan and evaluating its results.

9.0 The District will include in its budgeting procedures a method for easily identifying computer-related expenditures. These procedures should protect the cost center manager's flexibility to determine how funds will be spent.

10.0 There shall be a seven person Computer Use Steering Committee established that will serve as the District's advisory committee on all issues related to computer use. This Committee shall consist of:

Superintendent, (Chair)
Manager, Computer Coordination and Support Office (Non-voting)
Lay persons (two representastives)
Instruction Division (one representative)
Business Division (one representative)
Personnel Division (one representative)

D. General Recommendations

11.0 Since timing is critical, and several of the responsibilities recommended for the manager of the Computer Coordination and Support Office should be implemented soon, it is recommended that there be an Interim Coordination Committee appointed to carry out those tasks until the manager is employed. This committee should be drawn from the present committee, and should have the following composition:

One representative from each Division
One secondary principal
One elementary principal

Case Study Analyses

The work of the committee was analyzed from three perspectives. First, the final report and the committee's charge were compared and contrasted. Second, the actual work of the committee was examined in regard to recurrent themes, processes, and issues. Third, a survey of committee members was conducted in which they evaluated various aspects of the committee's work and made recommendations for future action.

The Charge and the Final Report

The final report to the superintendent developed by the consultants, as part of their contract with the district, embodies one perspective on the attempt of the committee to meet the superintendent's charge. Figure 4 shows a point-by-point comparison between each of the major elements of that charge (underlined) and the report.

From this comparison it is evident that a long-range plan was not developed. Instead, a series of policy related recommendations were presented that focused on instructional related computer use and the logistics of computer use management and coordination. Almost all of the recommendations related to the topics specified by the superintendent are part of the functions delegated to the proposed computer coordination and support office and/or the interim committee and related structures .

The superintendent issued several subsequent directives in conferences with the team's chairperson. Many of these were addressed. Some were not. For example, early in the process (June 20 meeting) the superintendent requested that a needs assessment address, among other things, skills needed and future training needs. This was not accomplished. What was conducted was a survey of current administrative uses of all computer resources. District-wide management information was controlled by the data processing office and personal professional microcomputer uses were intermingled in this survey. As a

Figure 4
A Comparison of the Charge and
the Final Report

1. The study team will develop a recommended three to five year District computer use plan.*

   The committee's report does not comprise a long-range plan. In fact, its recommendations propose that a plan be developed by the "Computer Coordination and Support Office," or by an interim committee in anticipation of the establishment of the office.

2. The recommended plan will be compatible with the Board-adopted long-range plan.

   The committee's report addresses and is compatible with several divisional level goals.

3. Recommendations will be developed for organizational considerations as well as computer use needs.

   The five recommendations regarding Management and Coordination address this component of the superintendent's charge.

4. Specific topics include:

   divisional responsibilities: One recommendation calls for a "Computer Coordination and Support Office," a staff office that will report directly to the superintendent. As a staff office, it is removed from any one division, but its operations will be overseen by the Computer Use Steering Committee which will have a representative from each division.

   maintenance of a planning statement: Two provisions call for the new staff office to maintain, or continuously monitor and evaluate, compliance with and achievement of the plan. Responsibilities enumerated for the proposed steering committee also deal with maintenance of a planning statement.

   staffing requirements: One recommendation deals with initial staff requirements of the office of management and support. The staff needed to provide support or perform administrative and/or instructional uses are not considered.

   acquisition of hardware: Though no recommendations deal directly with hardware acquisition, one provision advises "Every school will have adequate hardware and software to support the curriculum." Another recommends the establishing of standards for instructional hardware. A third sets capabilities of the district-wide management information system. In the provisions for the new office, information and guidance on hardware is specified. Review and approval of computer applications proposals, presumably including hardware acquisition, are delegated to a steering committee.

   software development: No recommendations deal with this portion of the superintendent's charge.

   data transmission: Several provisions deal with integrity of, access to, and security of data, as well as its transmission.

   incorporation of new technology: The general provision for a district-wide computer system calls for a system that is flexible to accommodate changing needs. The proposed staff office is required to provide information and guidance when planned changes are considered. However, no recommendation specifically addresses the incorporation of new technology.

   means for approval of computer use proposals: A specific recommendation, plus the flowchart which appears in the appendix of the committee's report, specify steps of the approval-disapproval process for proposals not identified in the long-range plan.

*Underlining indicates an element of the original charge to the committee.

result, the extent of current use and the desired future use of these two separate, but related, systems was not clearly defined by the survey.

At the September 13 meeting several further directives were reported:

- Recommend an acceptable level of computer use and the funding, skills, and future training necessary to provide it.
- Recommend a preferred level. Indicate how much each enhancement beyond current computer use will cost.
- Develop ways to implement the plan politically over the long term, i.e., provisions for feedback from teachers to ensure their needs and financially in terms of anticipated budget allocations.

The committee's report does not fulfill these directives. Several times during deliberations different team members advised the team to devise alternate plans. Such advice, though, was not implemented in terms of alternative levels of computer use and related funding, but rather in regard to alternate organizational recommendations.

Themes, Processes, and Issues

The final report embodies committee efforts to meet the spirit of the superintendent's charge since it provides the basis for long-range planning. That is, it includes policy related recommendations for instructional and administrative computing, and for the coordination and management of district-wide computer use.

The committee did not, however, actually develop a long-range plan, nor did it provide guidance for getting even the recommendations in place politically or financially. And, it left to others the financial aspects of budgeting for 1984-1985 and beyond. In order to gain additional insights about the operation of the committee, observations by the authors of the actual deliberations of the committee were analyzed in terms of recurrent themes, committee processes, and larger issues. A set of event-by-event observations by the authors appears in the

Appendix of this report. Figure 5 highlights the authors' resulting analysis of these observations.

Recurrent themes. There were several recurrent themes that appeared throughout the committee's deliberations including concerns about (1) the need to recommend policy, and (2) hierarchical relationships within the district. The press to recommend policy is evident throughout the history of the committee. Discussions prior to the first meeting emphasized it, the consultants provided several models for developing policy, and meeting minutes stress it (e.g., September 23, 1983). However, it was not until September 29 that the team openly discussed their task as one of recommending policy. Even on that date some members seemed apprehensive and unsure that they should be recommending policy. For example, the meeting minutes for that date note that one member suggested that, "maybe this committee should come to a halt and a representative from the board or the executive council of the district should make a policy statement and then the committee came back after the policies are made." In the end, even though the final report title includes the phrase "Policy Proposals," policy is used more in the sense that the recommendations in the report have policy implications rather than their being proposed policy statements.

From early in the committee's history, central office administrative members expressed concern about hierarchical relationships in the organization's administrative structure related to computer use management and coordination. This drew the administrative group away from the recommendation of a broadly conceived and thoroughly described plan for administrative computing. In contrast, while the instructional group did develop some general policy goals and activities related to these goals. It never got to the mechanics of getting their goals in place politically or financially.

Processes. The process of structured planning is closely related to the policy setting theme. The consultants provided models for structured planning several times during the committee deliberations. However, some committee members seemed reluctant

Figure 5
Summary of Observations Regarding
Themes, Processes, and Issues

Themes

- Press to recommend policy - consultants and committee members showed concern for policy, the final report contains policy proposals. The instructional group attempted to generate policy-related goals.

- Hierarchical relationships - a concern for the mechanics of district-wide management and coordination usurped the place of a prior concern with the purpose of such a structure among administrators on the committee.

Processes

- Structured planning - consultants and some committee members repeatedly suggested a problem-solving approach, but the first step, problem clarification, did not take place. The rest of the steps were variously followed by different groups. The recommendations regarding the next committee embodies a detailed, structured planning process.

- Timeline - the first three months of the five-month committee timeline were spent in general preparation. The real work of the committee took place from the middle of September to the middle of November, a much too short a time period for "long-range planning."

Issues

- Centralization versus decentralization

  - one office for management and coordination
  - day-to-day operation remains under control of appropriate division
  - K-12 curriculum
  - all teachers competent in instructional computer use
  - every school to have adequate hardware and software
  - district standards to be developed regarding generic software
  - coordinated computer management information system
  - all administrators and other relevant staff will be competent in administrative computer use
  - budgeting procedure should facilitate identification of computer related expenditures while protecting manager's ability to determine how funds are spent

- Management information and administrative computing were intermingled - an unclear distinction between the two areas led to an insufficient treatment of either one. As a result, there are no "standards" in the recommendation for either administrative or support-related microcomputer hardware or software.

- How to get plans into place politically, logistically, and financially - these issues were raised by the superintendent but not addressed by the committee.

to adopt the models. The result was that the administrative subgroup ignored these planning models and instead devoted all its energies to generating solutions in terms of organizational structure and relationships without ever clearly defining the problem(s) these were to address. The instructional subgroup adhered much more closely to a structured planning approach.

As noted in regard to the discussion of the final report and the committee's charge, a long-range computer use plan was not developed by the committee. Instead, the final report embodies the framework for future structured planning that looks very much like the charge to the original committee.

A larger notion of process concerns the timeline of the committee's work. The first meeting of the committee was on June 20, 1983. At this meeting the charge to the members of the study team was simply reiterated and a timeline was set. Further deliberations were delayed until August 1983. The delay until August for the next input session amounted to 40 percent of the total time the committee had to accomplish its task. As it was, the team really began to work in earnest in late September and was then faced with a deadline only two months away on November 30, 1984. A number of extra meetings were scheduled to make up for this short timeline. This created conflicts between committee work and the ongoing responsibilities of committee members, especially school building administrators. Given this abbreviated time period, it is not surprising that only policy recommendations and not full plans were developed.

Issues. Several important issues related to the centralization versus decentralization of control were raised during the deliberations of the committee. One issue was whether the instructional and administrative computing functions should be managed by the same office. This was resolved, in effect, by the recommendation that a management and support office, with the advice of an interdivisional steering committee, look after the district-wide plan once it has been formulated. Divisions would retain their rightful control over computer use as it affected instruction or administration in general, while the day-to-day

management of the district's computer use plan would fall to the computer coordination and support office. It seems that, if the committee's recommendations are accepted, much of the control of computer use in the district will rest with the new office and the steering committee.

The other recommendations that are also related to the issue of centralization versus decentralization are summarized in Figure 5. They concern a district-wide curriculum, computer literacy, hardware and software standards and so on.

Summary. Observations by the authors of committee activities and the analysis of committee meeting minutes brought to light several recurrent themes, committee processes, and larger issues which provide another view of the work of the committee. Another valuable perspective is found in the committee members' opinions about the deliberations of the committee and about future action.

Committee Survey

At the committee's request, a survey of committee members was conducted by the authors shortly after the final report had been submitted to the superintendent. The purpose of the survey was to gather information directly from committee members, which would help the district plan for future action. The first set of items embodies concepts from the literature on educational change which were identified by the authors as important to the success of innovations. Using a five-point scale, respondents indicated the perceived quality of various aspects of the committee's work in regard to these concepts. The next set of items on the survey included four open-ended questions. The questions asked committee members to comment on what worked and what didn't work, to give advice for the next committee, and to provide any other feedback.

Fourteen of the fifteen committee members rated the quality of various aspects of the committee's work in terms of: goals of the committee (item 1), participation in committee meetings (item 2), leadership of the committee (item 3), decisions made by

the committee (item 4), organization of committee meetings (item 5), relationship among committee members (item 6), input of information to the committee (item 7), timeline of committee activities (item 8), and the final product (item 9). In the tenth item they rated the overall success of the committee. For each item, a rating scale of 1 to 5 was provided where low numbers indicated lower ratings of quality and high numbers corresponded to higher quality ratings.

General results. The full survey summary which appears in Table 1 shows that responses to the survey items which concerned the quality of the various aspects of the committee were generally positive, but not overwhelmingly so. In 6 of the first 9 items the average rating fell between 3.5 and 4.2, on the scale of 1 to 5. The items on goals, participation, leadership, decisions, organization, and the final report are included in this group. The two items which received slightly lower average ratings were those concerning relationships among committee members and the timeline of the committee's activities, with average ratings of 3.2 and 3.3 respectively. The overall rating of the committee's success was an average of 3.7, again positive, but not overwhelmingly so.

Item analyses. Individual item analyses illustrate the distribution of ratings. Diversity of opinion is evident in the fact that two of the items (goals and input) had standard deviations greater than one point on a five-point scale. Four other items (participation, decisions, organization, and relationship) had less variability, with standard deviations ranging from .82 to .89. Items 8 (timeline), 9 (final product) and 10 (overall success) had standard deviations which ranged from nearly .7 to .74. Leadership (item 3), with a standard deviation of .67, had the most consistent set of ratings.

The item about decisions made by the team (#4) is a good example of another aspect of the distribution of responses. In this item there is a clear difference of opinion between the 11 people who rated it a 4 (relatively positive quality) and the 3 who rated it a 2 (relatively negative quality). A similar

Table 1

Committee Survey Summary

	Q#	Low Quality 1	2	3	4	High Quality 5	Base 100.0%	No Answer	Average Std Dev	Median
Goals of the committee	1.	0 0.0	3 21.4	3 21.4	4 28.6	4 28.6	14 100.0	0	3.642 1.108	4.000
Participation in committee meetings	2.	0 0.0	2 14.3	3 21.4	8 57.1	1 7.1	14 100.0	0	3.571 0.820	4.000
Leadership of the committee	3.	0 0.0	0 0.0	2 14.3	7 50.0	5 35.7	14 100.0	0	4.214 0.673	4.000
Decisions made by the committee	4.	0 0.0	3 21.4	0 0.0	11 78.6	0 0.0	14 100.0	0	3.571 0.820	4.000
Organization of committee meetings	5.	0 0.0	2 14.3	3 21.4	7 50.0	2 14.3	14 100.0	0	3.642 0.894	4.000
Relationship among committee members	6.	1 7.1	1 7.1	6 42.9	6 42.9	0 0.0	14 100.0	0	3.214 0.860	3.000
Input of information to the committee	7.	1 7.1	2 14.3	2 14.3	8 57.1	1 7.1	14 100.0	0	3.428 1.049	4.000
Timeline of committee's activities	8.	0 0.0	2 14.3	6 42.9	6 42.9	0 0.0	14 100.0	0	3.285 0.699	3.000
The final product	9.	0 0.0	1 7.1	2 14.3	9 64.3	2 14.3	14 100.0	0	3.857 0.742	4.000
Overall Success	10.	0 0.0	1 7.7	3 23.1	8 61.5	1 7.7	13 100.0	1	3.692 0.721	4.000

situation is evident in the fact that in 6 of the 10 items (numbers 1 and 2 and 5 through 8) , between 36% and 57% of the respondents gave ratings of 1, 2, or 3. For example, looking closely at the marginally positive ratings of the timeline of the committee (item 8, average rating of 3.3), a 57/43 split of responses is evident, with 8 respondents giving it a 2 or 3, and 6 giving it a 4. These results seem to suggest an undercurrent of less positive opinions among the members of the instructional sub-group, differing from that represented by the positive average ratings.

Verbatim comments. The comments made by respondents to the four open-ended items provide some additional insights to their attitudes. The comments regarding the first two questions about what did work and what did not work show that respondents expressed appreciation for the hard work of the committee's leadership and the other procedural aspects of the committee's efforts, for example, minutes, visits, and surveys. The diversity in background of the committee members appeared to result in conflicts which may explain why item 6 (relationship among committee members) was one of the items with a lower quality rating. The charge to the committee and the goals of the committee were seen by some as aspects that did not seem to work well. However, one respondent noted that the committee seemed "reluctant to deal with specific implementation plans and budget which the superintendent asked for specifically." A smaller committee, clearly defined issues, better communication, and a more efficient use of time seem to be the essence of the recommendations to the next committee.

Finally, when asked about "other feedback," respondents' comments ranged from, "It turned out well!" to "This was one of the most frustrating committees I have served on." This seems to epitomize the variety of reactions to the committee's efforts that are reflected in the variability of the ratings of quality and in the responses to the open-ended items.

Conclusions

The work of the committee has been analyzed from three perspectives. In this section, conclusions are presented based on the previously described findings and concepts identified by the authors from the literature on educational change as important to the success of innovations.

The findings of this study may be grouped under two broad topics. One is the committee report and its parts (i.e., the products of the committee) and the other is the processes of the committee.

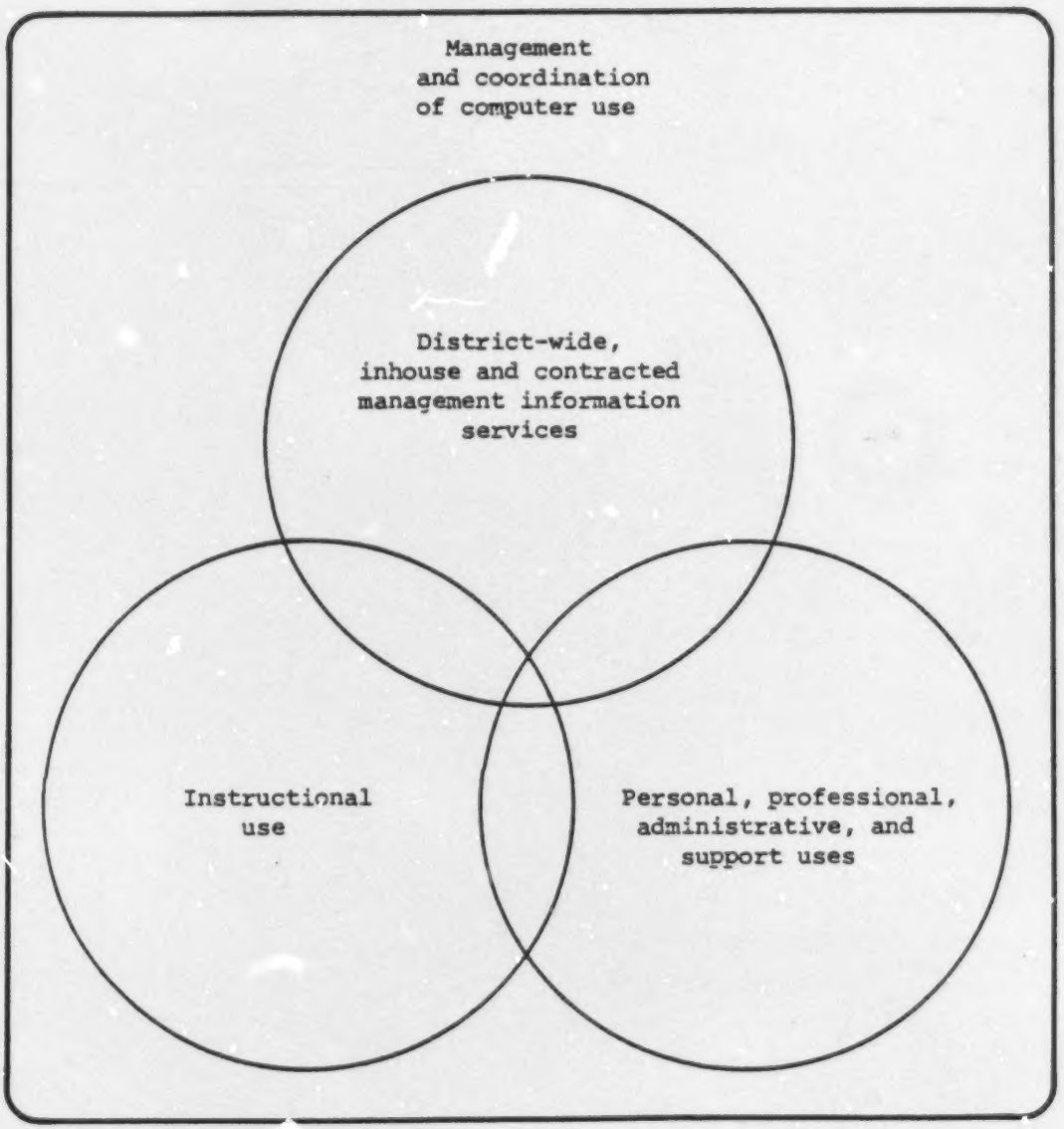
The Products

The superintendent's charge and the advice of committee members and the consultants clearly focused on the development of a long-range plan for computer use. However, the report presented to the superintendent was called an Interim Report and contained primarily recommendations having "policy implications." It did not include all of the elements of a plan (e.g., goals, objectives, activities, timelines, funding). It also did not cover all of the topics specified by the superintendent nor did it provide alternatives.

Figure 6 shows a diagram of the elements related to planning for computer use in a school district. The committee's report focuses directly on two areas and tangentially on two others. There are specific recommendations on management and coordination of computer use and on instructional uses. Administrative uses are the focus of only two very general recommendations which are more related to district-wide management information concerns than personal professional uses. Therefore, these recommendations also represent the committee's work regarding district-wide, inhouse and contracted computer services.

Figure 6

The Elements Related to Planning
for District Computer Use



Management and coordination. A critical mass of the administrators on the committee decided to wait for clarification and specific direction from the superintendent before committing themselves to precise plans or even alternative plans. When such input was not provided, they made the typical bureaucratic response of delegating their responsibility to others and in the effort, proposed adding another layer of administration. That is, the responsibility for developing plans, and for their implementation and evaluation, was passed on to an interim committee and a proposed Computer Coordination and Support Office.

Fullan (1982) notes that not only do reformers, who are typically central office administrators, make incorrect decisions about time, they have "no time perspective" when it comes to implementation (p. 68). In the case of this committee, the "reformers" chose to ignore timelines and the means of implementation altogether since the timeline, budget, and other details of establishing the office and developing and implementing a plan was left to others. In the face of uncertainty, they acted by proposing another layer of bureaucracy which would make the necessary decisions about computer use for them.

Instructional use. The teachers and others involved in developing recommendations for instructional use did not seem to get stalled by a lack of clarity or direction in the charge. This has been because this group had previously developed parts of a plan for instructional use. In addition, like other teachers, perhaps they were used to accepting such charges at face value and to simply proceeding with what they perceive as necessary. The undercurrent of contrary opinion on the survey suggests tension between the "adoptors" and the "implementors," since their responses seem to indicate that they are operating with different expectations.

Administrative use. Building level administrators and administrators of other support services did not have a cohesive advocacy group on the committee. As a result, there was no clear

definition of microcomputer uses for general office clerical tasks, nor was the information from the survey of administrative and support uses effectively incorporated into the recommendations. Such uses are a large, yet unaccounted for, source of microcomputer hardware and software resources in the district. Not having a clear picture of administrative computing represents a large gap in terms of district control and coordination of purchases, use, and support of computer resources.

District-wide internal and contracted management information services. Because of the data processing coordinator's presence on the committee, a relatively clear picture of district-wide computing resources was provided to the committee. However, these were not clearly reflected in the recommendations. Instead, included under administrative use was a vague recommendation regarding a "coordinated computer support system to provide management information." Also included was a set of desirable characteristics for such a system. However, there was not a sufficient distinction made between the characteristics and purposes of a district-wide management information system that would be controlled by the data processing office and other local personal administrative systems. This lack of clarity is evident in the survey of administrative uses which also suffers from the intermingling of these two areas. As a result, neither the administrative nor the district-wide management information system uses received the attention they deserve.

The Processes

The products of the committee in this case study are not the only things that have an impact on future events. A certain expectation regarding change is fostered as much by the actions of the committee, what it did, what it didn't do, and how things were accomplished, as by the "recommendations" in the report. Figure 7 shows three steps of educational change and other critical factors relevant to the work of a group like the committee. Conclusions regarding the findings of this study

relative to the steps in educational change and the critical factors are the topic of this section.

Figure 7
Educational Change Elements

I. Steps

A. Clarification of issues
B. Formulation of adoption alternatives
C. Development of implmentation plans

II. Critical Factors

A. Administrative support and involvement
B. Staff participation
C. Timelines and evaluation systems
D. Board and community involvement
E. Outside assistance

Clarification of issues. From the initial charge to the final draft of the committee's report, the previously described elements related to district computer use planning remained unclear. The central administration did not present a clear definition of these elements in its charge to the committee, nor was the committee successful in clarifying these elements on its own.

Of course, it may be the case that the central administration was not itself clear about the issues surrounding a change like computer use or about the steps in the change process. This is where consultants can provide valuable assistance by presenting the administration with recommendations regarding the processes of change that provide enough time for the necessary clarification to take place. Impatience to get on with the change often "results in hasty decisions, unrealistic timelines, and inadequate logistical support during implementation because due dates arrive more quickly than problems can be resolved" (Fullan, 1982, p. 68).

The time needed for such initial clarification should be included in the overall schedule. In the case of this committee, the time between June 20 and August 23 could have been devoted to

clarification of the issues surrounding computer use. At the August 23 meeting, the central administration could have provided a framework for action in the form of issues to be addressed and guidelines for policy statements and related plans. Without the direct endorsement by the central administration, those guidelines provided by the consultants did not have the necessary imperative authority.

In addition to providing the framework for action, the central administration must at the very beginning of the change process define the roles and responsibilities of each group of actors (i.e., teachers and administrators, lay persons, consultants, and committee support personnel). In this way all concerned will become aware of the rules of the game and know clearly what the central administration expects from them.

Staff soon realize that they need not take change serious, "unless administrators demonstrate through action that they should change" (Fullan, 1982, p. 65). At the beginning of the change process, this means taking an active part in the clarification of the issues surrounding a change such as that embodied in computer use and in defining the roles and responsibilities of participants.

The formulation of adoption alternatives. The members of the committee are those best suited to engage in the policy analyses needed to develop computer use adoption alternatives. At least four subgroups could have been designated, each one charged with conducting policy analysis on one of the elements related to planning for district computer use (see Figure 6).

Policy analysis involves the following steps:

- problem statement
- question development
- data collection, analysis and synthesis
- generation of adoption alternatives

Each of the subgroups of the committee, working virtually independently, could have followed these steps. Together with the initial clarification of the issues, the generation of adoption alternatives is all that could reasonably have been expected over the five- to six-month life of the committee.

The subgroups need to have regular contact with relevant central office administrators in order to (1) further clarify their area of concern in order to develop a problem statement, and (2) to generate questions to guide the analysis. Consultants in research design would be invaluable in helping groups focus their analysis. This is not an easy task, since being able to choose problems for analysis that are both important and feasible "is a matter of experience and talent rather than of formal procedures" (MacRae, 1979, p. 17).

It is in the data collection step that others in the district and outside the school district can be involved in the generation of adoption alternatives. Depending on the area, certain people may be chosen to provide information about their skill, knowledge, and attitudinal needs regarding computer use. They also may be called upon to provide suggestions regarding adoption alternatives or to critique alternatives once they have been formulated. Such involvement can help to create a feeling of ownership in the alternatives as well as being a vehicle for communicating the activities of the committee. People do not necessarily need to be directly involved in the policy analysis process to feel good about such activities, but they need to feel informed, to feel that their needs are being considered, and to feel that they are being listened to.

As Fullan states, it is not the quantity of participation that is important,

> it is the quality of the planning process which is essential: the degree to which a problem-solving approach at the adoption stage is combined with planning ahead for implementation (Miles, 1980). The quality of the adoption process already sets the stage for subsequent success or failure. (p. 64)

He goes on to discuss the role of participation:

> Indeed, at the adoption phase sheer quantity in participatory planning can be harmful if it involves wasted time, disagreement, unclear needs assessment, frustrating meetings, and so on, without those involved having any program involvements to show for their efforts. If the planning process (regardless of whether it is participatory) results in a specific,

> high-quality, needed innovation, or in a broad-based flexible program whose general direction is compatible with the needs of the district, it will have been a sufficient start. More important for change in practice, however, is implementation-level participation in which decisions are made about what does work and what does not. (p. 65)

At the end of the policy analysis process, each group would be expected to have generated a small number of competing alternatives that included (1) a philosophy and/or policy component designed to address the problem under consideration and (2) a general game plan for implementation (Hall and Hord, n.d.). These alternatives could then be considered by the central administration and selections made before implementation plans are developed.

Planning for implementation. The alternative(s) adopted as a result of the previous step are not yet refined enough for implementation. If implementation is to be successful, it must be structured to help practitioners find their own subjective meaning of the change (Fullan, 1982). Therefore, the involvement of those to be affected by a change such as computer use is critical to planning implementation.

Central office involvement in implementation is even more important.

> The basic point, however, is that the chief executive officer and other key central administrators set the conditions for implementation to the extent that they show specific forms of support and active knowledge and understanding of the realities of attempting to put a change into practice. To state it most forcefully, the administrator affects the quality of implementation to the extent that he or she understands and helps to manage the set of factors and the processes described in this chapter. (p. 65)

Those factors and processes include the adoption process, staff development, board and community involvement, timeline, and so on.

Implementation plans should be complete "game plans" (Hall and Hord, n.d.). That is, they should include:

1. Supportive organizational arrangements (e.g., policies, logistical and scheduling activities, staff, funds, roles, facilities, materials, and other resources needed to establish and maintain the innovation).

2. Training: formal, structured and pre-planned activities taken to develop positive attitudes, knowledge, and skills.

3. Consultation and reinforcement: idiosyncratic, problem-specific actions targeted at an individual or small group taken to encourage and to assist individuals solve implementation problems.

4. Monitoring and evaluation: actions taken to gather, analyze, and report data about the implementation and outcomes of a change effort.

5. External communication: actions taken to inform and/or gain support of those external to the users.

6. Dissemination: actions taken to broadcast information and materials related to the innovation so that others will be encouraged to adopt it.

(Based on Hall and Hord, n.d., Figure 1.)

Developing such plans is another year's work. And once they are completed, it will take three to five years to implement them. Unless central office administrators are aware of this and are able to separate interim activities from long-range plans, frustration and cynicism are likely to develop.

Summary

What can be learned from this case study is that the lack of clarity in regard to the content and process of change can lead to incomplete results and the misdirection of energy. After six months a new committee has been formed to essentially repeat the work of the old committee.

The literature on educational change suggests that through the active involvement of central office administrators in the clarification and other steps of the change process, by the use of a problem-solving approach to adoption and by planning ahead for implementation, results can be achieved that have the greatest potential for meeting the needs of all concerned.

References

Bass, G. (1978). A study of alternatives in American education, Vol. I, District policies and the implementation of change. Santa Monica, CA: Rand Corporation.

Berman, P. (1980). Thinking about programmed and adaptive implementation: Matching strategies to situations. In H. Ingram & D. Mann (Eds.), Why policies succeed or fail. Beverly Hills, CA: SAGE Publications.

Berman, P., & McLaughlin, M. (1977). Federal programs supporting educational change, Vol. VII, Factors affecting implementation and continuation. Santa Monica, CA: Rand Corporation.

Berman, P., et al. (1975). Federal programs supporting educational change, Vol. IV, The findings in review. Santa Monica, CA: Rand Corporation.

Emrick, J., & Peterson, S. (1978). A synthesis of findings across five recent studies in educational dissemination and change. San Francisco: Far West Laboratory.

Fullan, M. (1982). The meaning of educational change. Toronto, Ontario: The Ontario Institute for Studies in Education Press.

Hall, G. E. & Hord, S. M. (n.d.). A framework for analyzing what change facilitators do: The intervention taxonomy. Austin, TS: Research and Development Center for Teacher Education.

Hall, G. E., Hord, S. M., & Griffin, T. H. (1980). Implementation at the school building level: The development and analysis of nine mini-case studies. Paper presented at the American Educational Research Association, San Francisco.

Hoaglin, D. C., Light, R. J., McPeek, B., Mosteller, F., & Stoto, M. A. (Eds.). (1982). Data for Decisions: Information strategies for policymakers. Abt Associates, Inc., Cambridge, Massachusetts.

Hord, S. M., Huling, L. L. & Stiegelbauer, S. (1983). Analysis of interventions in school improvement efforts. Paper presented at the annual meeting of the American Educational Research Association, Montreal.

Johns Hopkins University. (1983, April). School uses of microcomputers: Reports from a national survey (Issue 1). Baltimore, MD: Center for Social Organization of Schools.

Lighthall, F. F. (1973, February). Multiple realities and organizational nonsolutions: An essay on Anatomy of educational innovation. School Review, 254-293.

MacRae, D., Jr. (1979, September/October). Concepts and methods of policy analysis. Society, 16(6), 17-23.

Market Data Retrieval. (1982). Update on school market for microcomputers. Westport, CT: Author.

Oettinger, A. G. (1969). Run, computer, run: The mythology of educational innovation. Cambridge, MA: Harvard University Press.

APPENDIX

Summary of Committee Events and Associated Materials

Summaries of individual committee events and associated materials follow. These are based on committee minutes, observers' notes, and materials associated with each event.

Meeting - June 20, 1983

Minutes indicate that team members and the consultant introduced themselves. Chairperson explained the superintendent's charge and relayed recommendations that the superintendent and assistant superintendent for business had made in conference with him before the team meeting. These recommendations included:

- Take time to do a thorough job; time can be extended if necessary.
- Provide budget estimate for 1984-85.
- Give periodic reports to Superintendent.
- Presentation to keep people informed of direction. (Minutes to not make clear who should make presentation to what people on what topic.)
- Person to manage. (Again, minutes do not clarify what this means.)
- Needs assessment necessary to include skills people in the buildings need and future training needs.

There seemed to have occurred a lengthy discussion about "monitoring the plan." Minutes for this date include these discussion points and questions:

- Do we need one person to keep track of different committees' computer-related actions?
- We need to build a monitoring and upgrading process into the plan.

Other concerns voiced by committee members at this meeting included:

- Ability to obtain ongoing feedback from the Superintendent.
- Willingness of superintendent to incorporate into his office someone with interdivisional responsibilities.
- Budgeting and staffing limits upon team's creativity.

Meeting - August 23, 1983

At this meeting the team generated a list of their personal concerns and problems with the Superintendent's charge. Each member was to receive a copy of the list, select the five most crucial problems, and return it for compilation before the next meeting.

The Laboratory consultant presented "The State of the Art in Computing," a paper prepared for the team, and handed out several other recently published articles about instructional uses of computers in schools. His paper traced trends in hardware and instructional software development, noted their implications for education, stressed major planning issues, pointed out generalizations about current uses of computers in schools.

The team discussed making a survey of principals and other administrators in the district to determine their administrative and instructional computer use wants and needs. Two team members indicated they would devise such a survey.

Committee members raised questions about what other districts in the area are doing with regard to planning for computer use. (There is no indication in the minutes that anyone was assigned to answer these questions.) The consultant said he would avail the team of information about computer use in districts of comparable size elsewhere in the nation.

One team member brought up questions raised at the last meeting (June 20) regarding divisional reponsibilities, the Superintendent's feedback, and interim regulation of purchases. Committee members were asked to review this meeting's and the last meeting's minutes and the group would determine a course of action at the September 13 meeting.

Meeting - August 30, 1983

District staff members (all of whom are members of the committee) made presentations about the current status of computer use in the district. These included reports about uses in secondary schools (mainly emphasizing the new Alpha-micro systems), uses in elementary schools, and administrative uses. Minutes indicate that the latter presentation concentrated upon a number of questions that need to be addressed, including:

- Are we going to continue with external service?
- Do we need to have data all in one place?
- With cable installation and the possibility of networking, should word processors all be networked or should stand-alones be approved?

- Who should be responsible for overseeing purchases, staff, maintenance, technical assistance, and coordination among different computers?

- Will intermediate service district proposed purchase meet future needs?

Meeting - September 13, 1983

Results of a survey of district administrators polling effective and desired computer uses were distributed. Six elementary principals responded and indicated the uses they find effective plus additional ones they would like to see. Six secondary administrators and nine central office managers responded similarly. All uses indicated were administrative uses. The team member who had administered the survey explained that his next step would be to combine the effective and additional uses from elementary, secondary, and central office into a single list, distribute it, ask administrators to rate these uses, and solicit comments in order to get some indication of computer use needs.

A prioritized list of team members' concerns (from list generated in meeting of August 23) was distributed at this meeting. These 21 concerns were the subject of a recent conference of the chairperson and team organizer with the Superintendent and Assistant Superintendent for Business.

The Superintendent advised the team to recommend (1) an acceptable level of computer use and the amount of new money this level might require, and (2) a preferred level of computer use. He asked that a dollar amount be indicated for each enhancement above current level of use and funding. In addition, he asked for indication of benefits that would accompany each additional enhancement. He explained that some increased benefits might be derived, not from increased funding, but from trade-offs in administrative and instructional uses, hardware, software, and staff. Staff trade-offs might mean either reduction or position redesigns. He emphasized that the district would not retreat from the present commitment to computer use.

One team member and the consultant stressed that the team must be realistic about promising to save money and be clear about terms of anticipated benefits (e.g., staff might not be reduced, but test scores might increase).

The Superintendent also emphasized the need for some way of monitoring computer-related expenditures until the team's plan is completed and implemented. He asked for a list of the various district computer advisory committees operating independently. He promised to work with the Cabinet to coordinate and monitor their work while the team devises their plan.

Finally, the Superintendent advised the team to develop ways to implement the plan politically in the long term, and financially in the shorter term. For the long term, political implementation, he stressed the need to allow for feedback from teachers and to ensure that their needs are met.

When the team organizer had asked the Superintendent whether any "new staff" that the team might recommend should be advisory or administrative, he responded, "Your job is to recommend. Our job is to implement and possibly restructure jobs."

This session concluded with a tour of the Data Processing Center and decisions to postpone brainstorming until September 27 and to insert a philosophy-setting meeting September 29.

Workshop - September 22, 1983

Six committee members attended a workshop at the Laboratory. The consultant discussed centralized versus distributed data processing and control of computer use and outlined various configurations of control and processing. He explained that technology exists for any configuration the district wants. But, first, they have to decide where they want the power and control. Thus, it becomes not a hardware recommendation but a policy recommendation.

The discussion of distributed computing power included the idea that distributed decision making will accompany it. The consultant pointed out that problem solving with the computer can be allowed at building sites, but distributed computing equipment must be compatible with central equipment so that district data bases do not deteriorate. This seemed to bring to the fore a nagging district problem: What are building administrators going to do if the equipment they already have in place turn is out to be incompatible after the team has made its recommendations? Concern was expressed over how these administrators would react.

The consultant advised that there will be immediate problems convincing those who have already purchased and developed expertise with specific equipment that they must go along with district recommendations. He added that the district would have to decide which administrative processes should be centralized and which decentralized. He also pointed out that different machines could be defined as most appropriate for different purposes. At some point the district will need to make a systems analysis to determine specifically what it needs to do with computers and how to do it.

Similarly, he explained instructional computer purchases should be made after needs are determined, but, unlike administrative computer needs, instructional needs usually vary from building to building, and from level to level. Committee members recalled the district's recent hardware purchases that

had been based upon such initial instructional needs identifications and that had resulted in different machines being purchased for different instructional levels.

The consultant explained that software selection also should be based upon instructional needs identification but will be constrained by the hardware chosen.

The emphasis throughout this session was upon initial policy setting (centralization versus decentralization of decision making and processing) and needs identification preceding configuration design and hardware selection. The consultant and at least one team member emphasized that a big part of the task would be recommending policy.

Meeting - September 27, 1983

A memo from the Superintendent was distributed listing computer-related advisory committees and explaining that the Cabinet would coordinate the activities and authorize the decisions of these groups while the committee is preparing its report. Also distributed was a copy of the computer services questionnaire for district administrators to complete. Results were anticipated before the next meeting.

Much discussion at this meeting centered around lack of any district policy statements regarding computer use. Many other school boards have made these. Many curriculum areas that are not considered by patrons to be nearly as important as computer education (e.g., energy education) have official School Board statements. Much work has been done in the district regarding computer education (goals and curriculum developed, inservice courses offered), but none of these programs are board-mandated. Instead, they have been developmental and pilot programs directed by the instructional office.

A team member reported telephone calls received at the district office from parents inquiring about computers in the schools. They range from, "Too much is being spent," to "Not enough attention is being given." This team member was concerned over what and when to tell parents about computer education guidelines and practices in the schools. This same team member reported that different elementary schools have different computer-related decision making structures. In those schools where parents are integrally involved, teachers are concerned because these parents often lack background in educational techniques.

This led to a discussion of what schools should teach about and with computers. One team member advised, "We must first decide what we want the final product (student) to be." The chairperson concluded that the team would get into this in philosophy writing.

A discrepancy exists between the Minutes for this date which state, "It is not necessary to use computers as vocation oriented," and the observer's notes which show that one team member said, in response to the above advice, "Everything doesn't have to be vocationally oriented."

The team worked in elementary, secondary, and district office subgroups supposedly using a format suggested in a premeeting conference of the consultant with the team's executive committee. The consultant first briefly described to the whole team this approach to specifying well-served and desired computer uses and steps necessary to bring desired uses to well-served levels. This was to be done for both administrative and instructional uses at both building and district levels. The consultant advised that this would enable the team to generate goal statements. (A sample plan for computers in instruction as well as a planning guide were distributed at this point to team members by the consultant but little direction for their application was given.) One subgroup followed the consultant's format fairly closely, another group followed it in part, and the third group listed many computer uses and simply noted whether each was well served or not.

The district office subgroup concentrated only upon administrative computer use until the consultant inquired about instructional support services. This prompted the addition of "access to information on appropriate instructional materials."

After the subgroup meetings, the full team reassembled. Final discussion, in which only three team members participated, was about "cleaning up" the district's data base to enhance on-line accessibility and about ensuring security of data in an on-line system.

The consultant encouraged the team to look to future legislative and district changes that might affect administrative functions and, thus, have bearing upon computer uses.

Meeting - September 29, 1983

During review of the last meeting's minutes, one team member questioned the meaning of the statement, "A policy statement is the most important item to be recommended." The chairperson explained that, according to research, when the board makes a strong statement supporting a program, its implementation will be smoother and more coherent. No more discussion occurred on this point.

The results of the computer uses survey from district administrators were presented. Elementary administrators did not seem to show clear, strong needs, while secondary principals were quite definite and cohesive in showing computer needs. Central administrators indicated diverse, special areas of interest. One administrator on the team voiced concern that such a questionnaire was administered to administrators who are not aware of the potential uses of computers and who may not know what the different items on the survey mean. However, the chairperson diverted the group's attention from this problem to a planning model.

The model had been prepared by the consultant to aid in determining directions desired in administrative and instructional uses of computers. He had gleaned most of the phrases from the subgroup lists of needs and uses generated at the previous meeting. The "model" appears in Figure 3.

A team member declared this a fairly traditional model and expressed the need for the team to raise the task above the technical to the policy level. He presented his own model of policy making for computer use by which policies (the rules of the game) would be set for (1) computer assisted instruction, (2) the computer as a subject, (3) administrative uses, and (4) overall policy overview and guidance. Discussion followed regarding whether the team actually should recommend policy and whether any policy they might recommend would be approved by the Superintendent and the Board. Several team members expressed the feeling that recommending policy was exactly what the team was expected to do. Finally, a member suggested they try brainstorming some policy statements. The policy areas, rather than statements, that they enumerated, follow. (Letters A, B, C, and/or D were added later and are keyed to the policy areas suggested above. A = overall policy review and guidance; B = administrative uses; C = instruction about computers; D = computer assisted instruction.)

- Where does it fit into the organizational structure? (i.e., Who's in charge?)	A
- Instructional scope and sequence.	C,D
- Statement of student outcomes.	C,D
- Administrative uses should promote efficiency or expand information and reporting capabilities.	B
- Provide ongoing inservice.	A
- Commit to office automation and training.	A
- Develop and maintain integrated data bases.	A,B,C

Model for Planning Computer Use

Administration Needs

- Flexibility to meet varying needs
- Combine information of a variety of types
- Quick response
- Direct access from site of work
- Desire of functions at site of task
- Accuracy of data (would involve some central control as to what data given)
- Ease of use (i.e., menu driven, etc.)
- Locus of control
- Coordination and support issues

Instruction Needs

- Computer as subject matter
  - Computer literacy
- Computers as an aid to teaching subject matter
  - Programming
  - Word processing
  - Subject matter
- Computers as support in instruction or instructional management
  - MRBO/MABO
  - IEPs
  - Library skills

Implications: What do our characteristics mean in terms of computer decisions?

Three areas need to be considered:

A. Staff
B. Facilities
C. Hardware and software

Examples are:

ADMINISTRATIVE USE

A. Staff	Implications
(Characteristics:)	-training
-flexibility	-acquisition
-combine information	-someone who knows data base system
-quick response	-etc.
-direct access	
-etc.	

B. Facilities	Implications
(Characteristics:)	-reconfigure
-flexibility	-modify
-combine information	-update
-etc.	-etc.

C. Hardware/software (Characteristics:)

Implications
-data-based
-data-based software
-on-line vs. batched
-networking

INSTRUCTIONAL USE

A. Staff (Characteristics)

Implications
-training
-someone who can operate technology
-etc.

B. Facilities (Characteristics:)

Implications
-central library of software
-etc.

C. Hardware/software (Characteristics:)

Implications
-ratio of stand-alone computers (1:50)
-etc.

- What are procedures of implementation? A
- What are the responsibilities of implementation? A
- Develop financial structure for implementation and maintenance of computer system. A
- Who will the system serve? A,B,C,D
- District will commit to development and maintenance of a planning process. A
- Why do we want a system in the first place? A

Two team members suggested that it was time for the team to stop "dodging bullets" and start addressing sensitive issues (such as, "Should the district hire someone to direct the system?") and begin stating what they think really should happen regarding computer use. These two felt that the policy statements they had just generated were too general. They were almost like "motherhood," impossible to find fault with. Yet no other sensitive issues were mentioned, and the topic was dropped by the team at this point.

Next the team was to work in three groups: instructional uses, administrative uses, and control issues (policy). Those assigned to the latter two groups met together.

The observer sat with the administrative policy group. The group discussed: hiring a coordinator of computer use and establishing a steering committee, organizational reporting relationship of this coordinator, responsibilities of coordinator, membership of steering committee, and its 501ationship to other computer committees. Twice the question "Who will be in control, the coordinator or the committee?" was asked, but no one responded.

Further discussion centered around the financial structure for implementation and maintenance of a computer system. Two attitudes were prevalent: (1) there should be a policy precluding people from purchasing data processing items out of funds other than those so earmarked, and (2) there should be guidelines within which purchases must be made, but policy shouldn't infringe upon discretionary use of building funds.

Subgroup Meeting - October 6, 1983

The two subgroups, one addressing instructional uses and the other, toiling with administrative uses and policy, continued their deliberations from the previous meeting.

The administrative/policy group focused upon how decision making for computer uses and purchases would occur with a new coordinator and a new steering committee. One team member forced the rest to consider how and why decision making with this new structure would differ from the current situation, i.e., why should there be a special new structure for decisions that are currently being made in the instructional, business, or personnel divisions? Committee members responded that a new arrangement was needed because of the large amounts of money being spent on hardware and software and that a new decision making approach was necessary to ensure compatibility of information transfer and security of the information. (No mention was made of the need to coordinate computing activities.)

The instructional uses group deliberated over such topics as: calling their curriculum "computer studies" rather than "computer literacy," which studies should be required of all students and which should be optional. (They decided computer studies should be for all students in grades K-6 and each student should take one semester of computer studies again in grades 7-12.) At this meeting they also proposed that <u>all</u> teachers must become competent in computer use.

A team member presented a working copy of "Computer Literacy Statement," "Computer Literacy Instructional Goals for [district] Intermediate Schools," and a list of

secondary level instructional needs, all of which had been developed previously by a group of teachers.

Meeting - October 11, 1983

Although minutes for this date begin with "The committee needs to consult with curriculum people in the secondary area and get their input," the observer's notes indicate no agreed upon, consistent expression of "committee needs." Rather, there was sharp disagreement on this point. Building administrators strongly expressed a case for informing principals and teachers of the team's anticipated recommendations before they were presented to the Superintendent and for soliciting feedback from people in the buildings and on other committees. (Building principals on the team referred to problems that had developed in the past because recommendations had not been communicated to those who would be affected by them prior to their enactment. They also expressed fear of their work conflicting with that of the Curriculum Steering Committee.) A single central office administrator responded firmly to each one of these concerns by reiterating that the team does not have time to go to other groups for feedback and that the "usual" procedure is to take recommendations to the Superintendent first. Both subgroups reported progress they had made.

Instructional Uses Subgroup. A handout was distributed by this subgroup. The document included a recommended philosophy statement, policy statements, and activities to accomplish the policies. (The subgroup's "Philosophy Statement" contains introductory, historic material that is not really philosophy at all. Actual philosophy begins on the second page with, "It is proposed . . ."). One team member questioned that the team should actually recommend curriculum in place of a curriculum committee. The consultant replied that computer technology has become such a social issue and curriculum should probably be decided at a higher level than most curriculum is. Besides, the subgroup report was not setting forth specific content anyway.

Specific policies concerning a computer studies curriculum on pages 3 and 4 were criticized, clarified and revised based upon the team's criticism and clarifications. The related activities on page 4 were discussed minimally, only one was dropped. It concerned the development of building plans for computer use. The activity called for development of a plan which included training needs and steps for implementation consistent with the district's plan. None of the recommended activities appear in the final version of the Interim Report.)

Administrative Uses Subgroup. The spokesman for this subgroup tied its work to the charge, saying they had looked at (1) division responsibilities, (2) staffing requirements, and (3) process for approval of computer use proposals. Considerable discussion focused upon: authority and membership of the proposed Computer Steering Committee; its relationship to the management and to the Curriculum Steering Committee; and the rank authority and reporting relationship of the proposed manager.

Minutes for this date state, "Committee felt there is a need to monitor the monies allocated for the use of computers but control would be retained by managers." This observer's notes do not reflect a need commonly felt by the committee. Instead, there seemed to be strong disagreement over whether the proposed steering committee should actually allocate money for or merely monitor computer purchases. This disagreement was mainly between two committee members and was not resolved in this meeting. One of these two members maintained that computer-related (especially software) purchases for instructional programs should go through the same approval process as do proposed purchases for any other instructional program, and the computer steering committee should monitor and ensure consistency of instructional materials. In opposition, the other team member held that all computer-related purchases must be approved and allocated centrally because "We have to be able to know what's being spent for computers and be able to pull one number out of the budget."

Although several members stated they still had concern about the reporting relationships and decision-making structure of the proposed manager and steering committee, most agreed to letting two team members meet with the Superintendent and seek his reaction to the proposed organizational structure. They also were to see if he would agree to chair the proposed steering committee. (The consensus was that without the Superintendent as chair, the steering committee would be ineffectual due to the interdivisional rivalries.)

Meeting - October 19, 1983

This meeting was initiated by an additional report from the Administrative Uses Subgroup. They were asked to explain more about their recommendations beyond the organizational structure that they had concentrated on at the last meeting. The subgroup's spokesperson reported that they really hadn't honed in on specific goals, but had "floated." Another subgroup member explained that the (system) requirements seemed so clearcut and well identified they had not felt the need to go into concrete details. But a third subgroup member interjected that they had felt the

district should have a specific action plan with the proposed manager as its monitor. Further, this action plan should address centralization versus decentralization, financial structure, means of reporting money spent for computer use, and a means of continuing the flexibility of cost center managers. It is unclear when, or if, this subgroup met since the last meeting, but, judging from the diversity of members' comments, there was no concensus among them. The minutes reporting this segment of the meeting do not reflect any of the comments reported in the observer's notes regarding this interaction.)

Word from the Superintendent included:

- He would chair the proposed steering committee but would vote only in event of a tie.
- There should be no problem with reporting relationships within the team's proposed structure because there is good communication at the administrative level.
- The Steering Committee should not have a board member on it and should include only one representative from the Instructional Division.
- Divisional representatives should initially be the Assistant Superintendents.
- Committee's report should go to only the Superintendent; he would inform others of critical issues and obtain feedback.

The Superintendent's claim that the problem of reporting relationships is a "hollow issue" sparked a spirited discussion among at least four team members. Two vehemently disagreed that it was a hollow issue.

The chairperson outlined on the chalkboard a planning model he had obtained from the consultant, but he gave little direction--about how to apply it. It included:

I. Charge
II. Process
III. Issues/Problems
IV. Plan

- Management/coordination
  - Divisional relationships
  - Reporting
  - Staffing
  - Approval process
- Administrative Applications
  - Recommendations from suggested applications
  - Policy statements
  - Strategies
  - Implementation action
  - Priorities
  - Timeline
  - Cost

- Instructinal Applications
  - Recommendations from suggested applications
  - Policy statements
  - Strategies
  - Implementation action
  - Priorities
  - Timeline
  - Cost

Subgroups assembled again to continue their deliberations over recommendations. The observer sat with the administrative uses subgroup.

Several subgroup members expressed discomfort with the model because they didn't care to start with and prioritize individual applications and then move "back up" in generality. Some wanted to simply state general uses and policies for the interim report and let the proposed steering committee deal with specifics. One member, though, responded that he had trouble releasing an incomplete report. At that point a member interjected, "We <u>have</u> as a goal an integrated data system and have talked about the things we want. <u>Those are our recommendations</u>." These she listed:

- flexibility
- integrated access
- quick response
- direct access from site of work
- direct functions at site of task
- accuracy and control of data
- storage of data
- transparent to user
- adequate security
- easy to use
- timelines

One administrator vehemently protested placing such specific objectives in a goal statement. He felt that that amounted to getting into the schematics and configuration of hardware. But when questioned as to what they should recommend, he had no specific answer and reluctantly agreed to discuss each item on the list.

One interaction that occurred during the discussion was especially pointed. It focused upon "direct access from site of work." A principal in the subgroup reported that currently access is often by foot or by phone. A central office administrator replied that means of access really doesn't matter, just as long as there is some form of access. The principal maintained that it does matter, especially since he assumed they had been talking about access via computer.

This same principal was quite insistent that those with data processing background thoroughly explain all items on the list--those system requirements that had been described as so clearcut and well identified at the beginning of the team meeting.

Another administrator brought up networking with the query, "I presume this is a human activity not a computer activity?" No one responded to clarify his misunderstanding.

Members of the subgroup agreed that specific strategies to implement their recommendations were beyond their capabilities and that these should be left to the proposed manager and steering committee.

When the entire team reassembled, members discussed (1) trying some problem simulations at the October 28 meeting to see how their proposed structure would work and (2) setting a timeline to obtain feedback from others in the district. The October 28 meeting was cancelled and neither of these tasks was ever accomplished.

Meeting - November 15, 1983

A first draft of the team's recommendations dated November 7, 1983, was sent to team members before the November 15 meeting. (At least one member, though, had not received the draft prior to the meeting.)

Several members expressed the desire to see philosophy placed closer to the front of the document in order to provide initial justifications for the team's recommendations.

When one team member asked the consultant for more detail about how the Computer Coordination and Support Center would function, the chairperson interjected that some members of the team had developed a model. In fact, three team members had completely reworked and added to the consultant's draft recommendations. This revision included a recommendation for a computer manager (1) to oversee the computer center, which was to retain the same organization as the current computer center but with staff increased from 13.5 to 22.5; and (2) to report directly to the Superintendent. It also included, besides the recommendations in the consultant's draft: a process, complete with flow chart, for initiating proposals not identified in the long-range plan; a recommendation specifying the exact budget function numbers to be used for computer-related expenditures and what such expenditures could consist of; and a recommendation requiring of all administrators competence in administrative computer uses. Further, appended to the draft's recommendations for instructional applications were the implementation activities

that the instructional uses subgroup had included in its earlier report.

Several team members and the consultant expressed confusion that the revised draft included ideas the team had not discussed. (The chairperson replied that the ideas included could be found in the minutes.) Attention was redirected to the consultant's draft at this point due to objections to this revised draft.

This meeting concluded with deliberations (incomplete) over the relationship of the proposed steering committee to other decision-making groups in the district. This discussion included consideration of two additional user committees as proposed in the draft revision. The team agreed these committees would add another bureaucratic layer and complicate decision making. The committee adjourned with the charge to look at both "drafts" in preparation for further discussion on November 16.

Meeting - November 16, 1983

The committee members returned to the consultant's draft of November 7, 1983. The revised version presented by some committee members at the November 15th meeting was by and large rejected. The committee members went through the consultant's document page by page suggesting changes as they went along. For example, it was suggested that an executive summary of just the committee's recommendations be placed before the body of the report. A major change was the decision to omit both dates and budget figures from the list of activities for the implementation of recommendations. The responsibility for setting timelines and dollar amounts was given to an interim committee that is to be essentially a smaller version of the present committee.

Meeting - November 23, 1983

Another draft of the recommendations was available before this meeting and reviewed at the meeting. Comments focused on shortening the executive summary and on the wording of various sections. No major revisions were suggested.

Meeting - November 28, 1983

Another version of the report was distributed prior to this meeting and was reviewed at the meeting.

Committee members' suggestions and criticisms included: (1) problem statement is too negative and doesn't give true picture of computer use and training in the district (a team member's voluntary revision appeared in the final report); and (2) a budget figure for the computer coordination and support office for 1984-1985 should be added ($85,000-$100,000 for manager, secretary, and supplies).